

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of processing a food product in a retort vessel comprising:
 - (a) placing the food product in a container having a fiber-based material component and sealing the container closed, the container having at least one exposed edge of paperboard;
 - (b) placing the closed container in the vessel and cooking the food product therein including regulating the interior conditions of the vessel using a control temperature and a control pressure; and
 - (c) cooling the food product within the vessel;
 - (d) wherein cooling the food product includes reducing the control temperature within the vessel according to a predefined temperature schedule and reducing the control pressure within the vessel according to a predefined pressure schedule; at least portions of the pressure schedule following the reduction in pressure resulting from the temperature schedule.
2. The method according to Claim 1, wherein cooling includes an initial cooling phase and wherein the pressure schedule tracks the corresponding pressure reduction due to the concurrent reduction in temperature during the initial cooling phase.
3. The method according to Claim 1, wherein the method of processing a food product is an agitation method.
4. The method according to Claim 1, wherein the method of processing a food product is a static process.
5. The method according to Claim 1, wherein the pressure schedule follows a theoretical reduction in pressure resulting from the temperature schedule.
6. The method according to Claim 1, wherein during cooling the control pressure is equal to or less than the theoretical pressure resulting from the temperature schedule.

7. The method according to Claim 1, wherein cooling includes reducing the control pressure in the vessel in a ramped manner.

8. The method according to Claim 1, wherein cooking includes using at least one of spray water, trickling water, water vapor, superheated water, steam, and air.

9. The method according to Claim 1, wherein the control pressure reaches an amount greater than 1.1 bar overpressure during the cooking phase.

10. A method of batch processing a food product located in a closed container having a paperboard material component, the method comprising:

(a) closing the container using a packaging method whereby at least one edge of paperboard material is exposed to the conditions exterior to the container, and placing the closed container in a retort vessel;

(b) conducting a cooking phase within the vessel;

(c) conducting a cooling phase within the vessel, during which the temperature within the vessel is reduced; during the cooling phase, a pressure exists within the vessel and a pressure exists within the paperboard material at the at least one exposed edge;

(d) wherein the cooling phase includes controlling the pressure within the vessel in order to minimize the difference between the pressure in the vessel and the pressure in the paperboard material, thereby helping to prevent moisture from entering into the paperboard of the container.

11. The method according to Claim 10, wherein cooling includes reducing the pressure in the vessel at a rate in the range of about 0 bar/minute to about -0.25 bar/minute during a portion thereof.

12. The method according to Claim 10, wherein, during at least a portion of the cooling, the control pressure in the vessel is set to a value less than the pressure in the paperboard material at the at least one edge.

13. The method according to Claim 10, wherein the pressure in the vessel has a rate of reduction of less than about -0.25 bar/minute.

14. The method according to Claim 10, wherein the method of processing a food product is an agitation method.

15. The method according to Claim 10, wherein the method of processing a food product is a static process.

16. In a method of processing a fiber-based container containing a food product, the method including placing the container in a retort vessel, conducting a cooking phase within the vessel, and conducting a cooling phase within the vessel; an improvement to conducting the cooling phase comprising:

actively controlling the vessel pressure to a value equal to or less than pressure in the walls of the fiber-based container during at least a portion of the cooling phase.

17. The method according to Claim 16, wherein the vessel control pressure is set to an amount in the range of about 0 bar to about 0.4 bar less than pressure within the walls.

18. The method according to Claim 16, wherein pressure in the walls is determined based on theoretical calculations.

19. The method according to Claim 16, wherein the cooling phase includes an initial cooling phase, and wherein actively controlling the vessel pressure to a value equal to or less than pressure in the walls of the fiber-based container is done during the initial cooling phase.

20. The method according to Claim 19, wherein the initial cooling phase is equal to or less than about 16 minutes.

21. The method according to Claim 16, wherein the container includes an exposed edge and the vessel pressure is actively controlled to a value equal to or less than pressure in the walls of the fiber-based container at the exposed edge.